DOCUMENT RESUME

ED 128 211 SE 021 297

AUTHOR Swihart, Thomas L., Ed.
TITLE Astronomy Educational Material Addendum 1970-1973. Part A: Material in English.
SPONS AGENCY Arizona Univ., Tucson. Seward Observatory.
PUB DATE Feb 73
NOTE 11p.; For related document see SE021298; Not available in hard copy due to marginal legibility of original document

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS *Astronomy; Bibliographies; *Books; College Science; Elementary Education; Elementary School Science; Films; Higher Education; Hobbies; *Instructional Materials; *Resource Guides; *Science Education; Secondary Education; Secondary School Science

ABSTRACT

This resource guide is an update, covering the years 1970-1973, to a compendium of astronomy educational materials published in 1970. Included are English-language materials of all kinds, and at all levels, which would be of interest in astronomy education. The materials are classified according to type and are graded according to level where appropriate. The types are: books, atlases, journals, lecture notes and exercises, films, filmstrips, photographs, and slides. Levels comprise the following classifications: general public, amateur astronomers, elementary school, secondary school, university science students, university nonscience students, and advanced material for research or graduate study. (MH)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED128211

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

I. A. U. COMMISSION 46

TEACHING OF ASTRONOMY

BEST COPY AVAILABLE

ASTRONOMY EDUCATIONAL MATERIAL

ADDENDUM 1970 - 1973

Part A: Material in English

Edited by T. L. Swihart
Steward Observatory
University of Arizona
Tucson, Arizona 85721, U. S. A.

February, 1973

SE 021 297

INTRODUCTION

Prior to the I. A. U. meeting in Brighton, England in 1970, Commission 46 on the teaching of astronomy brought out a compendium entitled Astronomy Educational Material, edited by Prof. E. A. Müller, president of the commission. This consisted of lists of recommended materials of all kinds, at all levels, and in all languages, which would be of value in astronomy education. In the Commission 46 meetings at Brighton, it was decided to keep the A. E. M. up to date by issuing an addendum every three years. The addendum is divided into three parts according to the language: English, Russian and Slavic languages, and all other languages. The present work is the English part of the 1970-73 Addendum to the A. E. M. The other two parts are being prepared separately.

The materials are classified according to type and are graded according to level where appropriate. The types are: I. Books; II. Atlases, Handbooks, etc.; III. Journals; IV. Lecture Notes and Exercises; V. Films; and VI. Filmstrips, Photographs, and Slides. The level is indicated as follows:

GP-primarily for the general public
GT-for amateurs and others having a special interest in astronomy
E-for elementary school students
S-for secondary school students
UG-for university students not specializing in science
US-for university students specializing in science
A-advanced material at the graduate or research level

An effort has been made to see that the material is as complete and accurate as possible; however, it is impossible to keep the work completely free from errors and omissions. Prices in particular are subject to change, so the figures given should be interpreted only as guides.

The format has been changed from that of the original A. E. M. in the interest of saving space. The result is a very significant decrease in production and distribution costs. I am sorry for any inconvenience caused by this format change.

I am grateful to the persons who suggested entries or otherwise helped in the preparation of this Addendum. These persons include R. Berendzen, F. M. Branley, D. DeVorkin, A. Fowler, D. P. Hube, A. H. Jarrett, H. E. Jørgensen, R. Leclaire, J. Marks, D. McNally, E. A. Müller, and D. G. Wentzel. The RESOURCE LETTER ON ASTRONOMY EDUCATION MATERIALS of the American Association of Physics Teachers, prepared by R. Berendzen and D. DeVorkin, has been a very useful reference. Funds for the preparation and distribution of this work were kindly provided by Steward Observatory, R. J. Weymann director.

Thomas L. Swihart
February 27, 1973

I. BOOKS

E Adler, I. The Sun and its Family, John Day, 1969, $3.49

E,S Angrist, S. W. How Our World Came To Be, Crowell, 1969, $4.50

E Asimov, I. Stars, Follett, 1968, $1.25

E,S Branley, F. M. Experiments in Sky Watching, Crowell, 1967, $4.50

E Freeman, M. B. and Freeman, I. Do You Know the Stars? Random House, 1970, $2.95

E Ivins, A. Beginning Knowledge Book of Stars and Constellations, Macmillan, 1969, $3.95

E Page, L. Dipper Full of Stars, Follett, 1964, $3.50

E Zaffo, G. Giant Book of Things in Space, Doubleday, 1969, $4.95

E Learning About Space (teacher's guide, ages 7-13), Ed. Pamphlet No. 55, Dept. of Ed. and Science, H. M. Stat. Off., 49 High Holborn, London WC1, 1970, L 8.50

S Jepsen, K. The Moon and the Solar System, Scan-Globe, 1971, Dkr 480

S Jepsen, K. Teachers' guide for the above, Dkr 46, 91p

S Harvard Project Physics, Holt, Rinehart, & Winston (Physics book with sections on astronomy), text $5.10, handbook $3.00, reader $6.60, tests $0.90, prog. instruction units $1.20, teachers' guide $14.98

S Space Resources for Teachers: Space Sciences, NASA No. 0-358-779, U.S. Govt. Print. Off., Wash. D.C. 20402, 1969, $2, 144p

GP Aichen, F. Galileo, English Universities Press

GP Aichen, F. Newton, English Universities Press

GP Calder, N. Violent Universe, Viking, 1969, $8.95, 160p

GP Edson, L. Worlds around the Sun, Van Nostrand, 1969, $4.95, 160p

GP Gingerich, O. (ed) Frontiers in Astronomy (collection of articles from Scientific American), Freeman, 1970, $5.75, 370p

GP Glasby, J. S. Variable Stars, Constable, London, 1968, 333p

GP Guest, J. E. (ed) The Earth and its Satellite, Hart-Davis, 1971, L 3.95 (McKay $15.00)

GP Jastrow, R. Red Giants and White Dwarfs, Signet, 1969, $1.25, 176p

GP Klein, H. A. The New Gravitation, Lippincott, 1971, $5.95

GP Kopal, Z. Telescopes in Space, Faber & Faber, 1968, L 2.50, 140p (Hart, N. Y., $12.50)

GP Menzel, D. H. Astronomy, Random House, 1970, $17.50, 320p

GP Moore, P. Naked Eye Astronomy, Norton, 1966, $6.50

GP Whitney, C. A. The Discovery of our Galaxy, Knopf, $10, 308p

GP Wood, J. A. Meteorites and the Origin of the Planets, McGraw-Hill, 1968, $5.95 (paper $3.50), 117p

GP Young, L. B. (ed) Exploring the Universe (articles and essays on astronomy), Oxford, 1971, $6.50, 731p

GT Beet, E. A. Mathematical Astronomy for Amateurs, David & Charles, 1972, L 2.75, 152p

GT Glasby, J. S. The Dwarf Novae, Am. Elsevier, 1970, 293p

GT Meadows, A. J. Stellar Evolution, Pergamon, 1967, $2.95 (paper), 169p

GT Pecker, J.-C. Experimental Astronomy (translated from French), Reidel, 1970, $9.60, 105p

GT Pecker, J.-C. Space Observatories (translated from French), Reidel, 1970, $10.90, 120p

GT Sidgwick, J. B. Observational Astronomy for Amateurs, Mcmillan, 1971, $10, 358p

UG Birney, D. S. Modern Astronomy, Allyn & Bacon, 1969, $10.95, 338p

UG Brandt, J. and Maran, S. New Horizons in Astronomy, Freeman, 1972, $12.50, 496p

UG Dixon, R. T. Dynamic Astronomy, Prentice-Hall, 1971, $11.95, 368p

UG Hynek, J. A. and Apfel, N. H. Astronomy One, Benjamin, 1972, $10.50, 402p

UG Jastrow, R. and Thompson, M. H. Astronomy: Fundamentals and Frontiers, Wiley, 1972, $12.50, 404p

UG Menzel, D. H., Whipple, F. L. and de Vaucouleurs, G. Survey of the Universe, Prentice-Hall, 1970, $16.50, 860p

UG Payne-Gaposchkin, C. and Haramundanis, K. Intro. to Astronomy, Prentice-Hall, 1970, $14.95, 610p

US Aller, L. H. Atoms, Stars, and Nebulae, Harvard, 1971, $11.95, 351p

US Evans, D. S. Observation in Modern Astronomy, English U. Press (Am. Elsevier), 1968, $14.00, 273p

US Hartmann, W. Moons and Planets, Bogden & Quigley, 1972, $12.95, 404p

US Haymes, R. C. Intro. to Space Science, Wiley, 1971, $14.95, 556p

US Kaula, W. M. Intro. to Planetary Physics:The Terrestrial Planets Wiley, 1968, $15.95, 490p

US Mason, B. and Melson, W. The Lunar Rocks, Wiley, 1970, $8.95, 177p

US Sciama, D. W. Modern Cosmology, Cambridge, 1971, $8.95, 212p

US Shapley, H. and Hodge, P. Galaxies, Harvard, 1972, $10, 232p

US Tayler, R. J. The Origin of the Chemical Elements, Wykeham, L 2.25, 170p

US Tayler, R. J. The Stars: Their Structure and Evolution, Wykeham, 1970, L 1.50, 203p (Springer, N. Y., $4.40)

US Unsöld, A. The New Cosmos (translated from German), Springer, 1970, $9.50 (paper $7), 373p

US White, R. S. Space Physics, Gordon & Breach, 1969, $24.50, 318p

II. ATLASES, HANDBOOKS, ETC.

E,S Levitt, I.M. and Marshall, R. K. Star Maps for Beginners, Simon & Schuster, 1964, $1.95, 47p

GP,GT Menzel, D. H. Field Guide to the Stars and Planets, Houghton Mifflin, 1963, $4.95, 397p

GP Moore, P. Atlas of the Universe, Rand McNally, 1970, $35, 272p

GT Glasby, J. S. The Variable Star Observer's Handbook, Norton, 1972, $6.25

GT Hartung, E. J. Astronomical Onjects for Southern Telescopes, Cambridge, 1968, 238p

GT Vehrenberg, H. and Blank, D. Handbook of the Constellations, Treugesell-Verlag, D-4000, Düsseldorf, W. Germany, 1970, 195p

Kemp, P. A. Astronomy and Astrophysics: A Bibliographical Guide, Archon, 1971, $25, 584p

Lovell, B. The New Space Encyclopaedia, Artemis Press, L 3.25, 1969

Luyten, W. J. The Hyades (catalog of cluster members), U. of Minnesota, 1971, 149p

Saterthwaite, G. E. Encyclopaedia of Astronomy, Hamlyn, L 6.30

Directory of Physics and Astronomy Faculties in North American Colleges and Universities, Am. Inst. of Physics, annual, $7.50

International Physics and Astronomy Directory, Benjamin, 1969, 802p

Handbook of the Astronomical Society of Southern Africa, Royal Observatory, Cape Town, annual, R0.50

III. JOURNALS

Some of the following journals are published under the auspices of a scientific society and are available to society members at reduced rates; in certain instances membership is required for journal subscription. There may also be a distinction between institutional subscriptions (for institutions, libraries, societies, etc.) and subscriptions for individuals.

A Astronomical Journal, Am. Inst. of Physics, 335 E. 45th St., N.Y., N.Y. 10017, U.S.A. 10 issues, $40/yr.

A Astronomy and Astrophysics, Springer-Verlag, 1 Berlin 33, Heidelberger Platz 3, Germany. 24 issues, DM1328/yr plus postage (indiv. DM80).

A Astrophysical Letters, Gordon & Breach, 42 William IV St., London W.C.2, England. 12 issues/yr. In Britain L10.15/yr (indiv. L2.50), in U.S. $28/yr (indiv. $8.50), elsewhere L11.65/yr (indiv. L3.55).

A Astrophysical Journal, U. of Chicago Press, 5801 Ellis Ave., Chicago, Ill. 60637, U.S.A. 24 issues, $65/yr plus foreign postage. Reduced rates for members of national astronomical societies.

A Astrophysical Journal Supplement, U. of Chicago Press, $16/volume (foreign $17/volume).

A Astrophysics and Space Science, Reidel Pub. Co., P. O. Box 17, Dordrecht, Holland. 12 issues, Dfl.675 (indiv. Dfl.52).

GT-A Bulletin of the Am. Ast. Soc., Am. Inst. of Physics, 335 E. 45th St., N.Y., N.Y. 10017, U.S.A. 4 issues, $8/yr.

A Comments on Astrophysics and Space Physics, Gordon & Breach, 42 William IV St., London W.C.2, England. 6 issues/yr. In Britain L4.18/yr, elsewhere L4.58/yr.

A Cosmic Electrodynamics, D. Reidel Pub. Co., P. O. Box 17, Dordrecht, Holland. 4 issues, Dfl135/yr (indiv. Dfl.65).

GP-US The Griffith Observer, Griffith Obs., P.O. Box 27787, Los Angeles, Calif. 90027, U.S.A. 12 issues, $3/yr.

A Icarus, journal on the solar system, Academic Press, 111 5th Ave., N.Y., N.Y. 10003, U.S.A. 6 issues, $64/yr.

GP-US Journal for the History of Astronomy, Science History Pub. Ltd., Mill Lane, Chalfont St Giles, Buckinghamshire, England.

GT-A Journal of the Roy. Ast. Soc. of Canada, U. of Toronto Press. 6 issues/yr.

A Memoirs of the Roy. Ast. Soc., Blackwell Scientific Pub., Ltd., Osney Mead, Oxford, England.

GP,GT Mercury, Ast. Soc. of the Pacific, N. Am. Hall, Calif. Academy of Sciences, San Francisco, Calif. 94118, U.S.A. 6 issues/yr. $6.50 /yr. including membership in the A. S. P. (Jr. $4).

GP-US Monthly Notes of the Ast. Soc. of Southern Africa, U. of Cape Town, Rondebosch, Cape, South Africa. 12 issues, R4.00/yr.

A Monthly Notices of the Roy. Ast. Soc., Blackwell Sc. Pub., Ltd. Oxford, England. 16 issues/yr.

GT-A The Observatory, Roy. Greenwich Obs., Herstmonceux Castle, Hailsham, Sussex, England. 6 issues, L3.00/yr.

GP The Planetarian, journal of the International Soc. of Planetarium Educators, Exec. Sec. Jack Howarth, 1300 San Pedro Ave., San Antonio, Texas 78284, U.S.A. 4 issues, $5.25/yr in N. Am, $6.25 elsewhere.

GT-A Proceedings of the Ast. Soc. of Australia, Sydney U. Press, $A3.00/issue.

A Publications of the Ast. Soc. of Japan, Tokyo Ast. Obs., Mitaka, Tokyo, Japan. 4 issues, $18/yr.

GT-A Publications of the Ast. Soc. of the Pacific, N. Am. Hall, Calif. Academy of Sciences, San Francisco, Calif. 94118, U.S.A. 6 issues/yr. $16.50/yr including Mercury and membership in the A. S. P. (Jr. $10).

GP-US Quarterly Journal of the Roy. Ast. Soc., Blackwell Sc. Pub., Ltd. Oxford, England.

GP,GT Sky and Telescope, Sky Pub. Corp., 49-51 Bay State Road, Cambridge, Mass. 02138, U.S.A. 12 issues, $8/yr.

A Solar Physics, D. Reidel Pub. Co., P.O. Box 17, Dordrecht, Holland. 12 issues, Dfl.780/yr. (indiv. Dfl.50).

GP-US Southern Stars, journal of the Roy. Ast. Soc. of New Zealand, P.O. Box 3181, Wellington, C.1, N. Z. 4 issues/yr.

A Soviet Astronomy-AJ, Am. Inst. of Physics, 335 E. 45th St., N.Y., N.Y. 10017, U.S.A. English translation of Russian Ast. J. 6 issues, $65/yr in N. Am.

The following journals are not dedicated specifically to astronomy, but they frequently contain astronomical articles:

GP,GT American Scientist, 155 Whitney Ave., New Haven, Conn. 06510, U.S.A. 6 issues, $12/yr ($14 foreign).

GP-A Nature, Macmillan Journals Ltd., Brunel Rd., Basingstake, Hants RG21 2XS, England. 52 issues, L16/yr (U.S. and Canada $48).

US,A Nature Physical Science, Macmillan Journals, 52 issues, L10/yr (U.S. and Canada $35). Nature and Nature Physical Science together L24/yr ($83).

GP-US Physics Today, Am. Inst. of Physics, 335 E. 45th St., N.Y., N.Y. 10017, U.S.A. 12 issues, $9/yr in N. Am.

GP-A Science, Am. Assoc. for Adv. of Science, 1515 Massachusetts Ave. NW, Washington, D. C. 20005, 52 issues, $20 plus foreign postage/yr.

GP,GT Scientific American, 415 Madison Ave., N.Y., N.Y. 10017. U.S.A. 12 issues, $10/yr.

IV. LECTURE NOTES AND EXERCISES

S Wilkinson, R. H. The Heavens Above, lecture notes in astronomy for 3rd year physics students, 1971, 125p

S Wilkinson, R. H. What is the Milky Way? 1971, 22p. For the above two items contact Dr. Wilkinson, Medley Hall, 48 Drummond St., Carlon, Victoria 3052, Australia.

US,A Atanasijevic, I. Selected Exercises in Galactic Astronomy, Reidel, 1971, Dfl. 35, 144p

A de Graaf, T. Nuclear Astrophysics, Kapteyn Lab., P. O. Box 800, Groningen, Netherlands, 1971, Dfl. 5, 41p

The following three items may be obtained from Observatoire de Geneve, 1290 Sauverny (GE), Switzerland:

A Jaschek, C. Double Star Astronomy, 1970, s.Fr. 12, 120p

A Ledoux, P., Bouvier, B., Reeves, H., and Weigert, A. The Internal Structure of the Stars, 1969, s.Fr.20, 420p. Partly in English and partly in French.

A Mihalas, D., Pagel, B., and Souffrin, P. Theory of Stellar Atmospheres, 1971, s.Fr.24, 312p

Information concerning laboratory exercises in astronomy may be obtained from: Prof. Haym Kruglak, Physics Dept., Western Michigan University, Kalamazoo, Michigan 49001, U. S. A.

Guide to Resources for Laboratory Activities in Astronomy

V. FILMS

Individual astronomy films are not listed here, but addresses of some of the principal distributors are given. These may be contacted for descriptive literature on the available films.

AAPT, Physics Dept., SUNY, Stoney Brook, N. Y. 11790, U.S.A.

American Educational Films, P.O. Box 5001, Beverly Hills, Calif. 90210, U.S.A.

Associated Electrical Industries, 33 Grosvenor Pl., London, S.W.1, England

A. S. P., c/o G. Perkins, 4636 Vineta Ave., La Canada, Calif. 91011, U.S.A.

Bell Telephone Labs., Film Library, Murray Hill, N.J. 17971, U.S.A.

Boston U., Film Library, 765 Commonwealth Ave., Boston, Mass. 02215, U.S.A.

Consolidated Film Ind., 959 Seward St., Hollywood, Calif. 90038, U.S.A.

CSIRO Film Unit, P.O. Box 89, East Melbourne, Victoria 3002, Australia

Eames Studios, 901 Washington Blvd., Venice, Calif. 90291, U.S.A.

Encyclopedia Britannica Films, 425 N. Michigan Ave., Chicago, Ill. 60611, U.S.A.

Extension Media Center, U. of California, Berkeley, Calif. 94720, U.S.A.

Film Associates of California, 11014 Santa Monica Blvd., Los Angeles, Calif. 90025, U.S.A.

High Altitude Observatory, Boulder, Colorado 80302, U.S.A.

Houghton Mifflin Co., 110 Tremont St., Boston, Mass. 02107, U.S.A.

Horizons of Science Film Division, Princeton, N. J. U.S.A.

International Film Bureau, 332 S. Michigan Ave., Chicago, Ill. 60604, U.S.A.

Indiana U., Audio-Visual Center, Bloomington, Ind. 47401, U.S.A.

Kitt Peak National Observatory, Photo Dept., P.O. Box 4130, Tucson, Ariz. 85717, U.S.A.

Modern Film Rentals, 2323 New Hyde Park Rd., New Hyde Park, N. Y. 11040, U.S.A.

McGraw-Hill Text Films, 330 W. 42nd St., N.Y., N.Y. 10036, U.S.A.

Modern Learning Aids, 1212 Ave. of the Americas, N.Y., N.Y. 10036 U.S.A.

Nat. Aeronautics and Space Administration, Film List: NASA Headquarters, Code FAD, Washington, D.C. 20546, U.S.A.

National Center For Atmospheric Research, Boulder, Colorado 80302, U.S.A.

National Film Board of Canada, P.O. Box 6100, Montreal, Quebec, Canada

Ohio State U., Film Distribution Supervisor, Motion Picture Division, 1885 Neil Ave., Columbus, Ohio 43210, U.S.A.

Rensselaer Polytech. Inst., Office of Instructional Research, Troy, N.Y. 12181

U. of Southern California, Film Distribution Section, University Park, Los Angeles, Calif. 90007, U.S.A.

VI. FILMSTRIPS, PHOTOGRAPHS, AND SLIDES

Distributors from whom the above can be ordered are listed below. This list is by no means exhaustive.

Bara Photographic, 4805 Frolich Lane, Hyattsville, Md. 20781, U.S.A.

Bonestell Space Art, 965 Lincoln Ave., Palo Alto, Calif. 94301, U.S.A.

CSIRO Film Unit, P.O. Box 89, East Melbourne, Victoria 3002, Australia

Cal Tech Bookstore, 1201 E. California Blvd., Pasadena, Calif. 91109, U.S.A.

Dixon Spacescapes, P.O. Box 723, Rialto, Calif. 92376, U.S.A.

Ealing Corp., 2225 Mass. Ave., Cambridge, Mass. 02140, U.S.A.

Lick Observatory, Photographic Dept., U. of California, Santa Cruz, Calif. 95060, U.S.A.

Librarian, Royal Astronomical Society, Burlington House, Piccadilly, London W.1.V ONL, England

McGraw-Hill, 330 W. 42nd St., N.Y., N.Y. 10036, U.S.A.

Sky Pub. Corp., 49-51 Bay State Road, Cambridge, Mass. 02138, U.S.A.

Star Gate, Educational Materials Center, P.O. Box 15031, Las Vegas, Nevada 89114, U.S.A.

Tersch Enterprises, P.O. Box 1059, Colorado Springs, Colo. 80901, U.S.A.

Ward's Natural Science Estab., P.O. Box 1712, Rochester, N.Y. 14603, U.S.A.

Yerkes Observatory, Photographic Dept., Williams Bay, Wisconsin 53191, U.S.A.